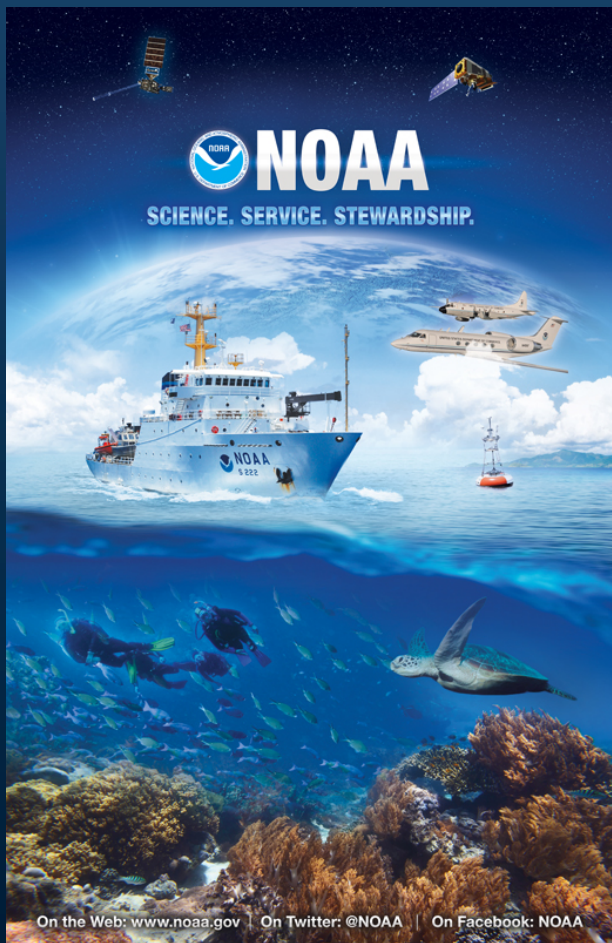


Pacific Northwest Drought Early Warning System: *An interagency Federal, State, Tribal, and Local Partnership*

Robert S Webb
Director, Physical Sciences Division
Earth System Research Laboratory
Boulder, CO



The National Oceanic and Atmospheric Administration (NOAA) vision and mission directly support a Pacific Northwest Drought Early Warning System



NOAA's Vision:

Resilient Ecosystems, Communities, and Economies.

Healthy ecosystems, communities, and economies that are resilient in the face of change

NOAA's Mission:

Science, Service, and Stewardship.

To understand and predict changes in

climate, weather, oceans, and coasts,

To share that knowledge and information with others, and

To conserve and manage coastal and marine ecosystems and resources.



NOAA's Next Generation Strategic Plan

Goals are core components of a Pacific Northwest Drought Early Warning System

Healthy Oceans



Weather Ready
Nation



Climate
Adaptation &
Mitigation



Resilient Coastal
Communities &
Economies



SCIENCE & TECHNOLOGY



NOAA's "Environmental Intelligence Agency" priorities are critical for the success of a Pacific Northwest Drought Early Warning System

MONITORING

MODELING



OBSERVATIONS

ASSESSMENT

FORECAST & PRODUCTS



Provide information and services to make communities more resilient



Evolve the Weather Service



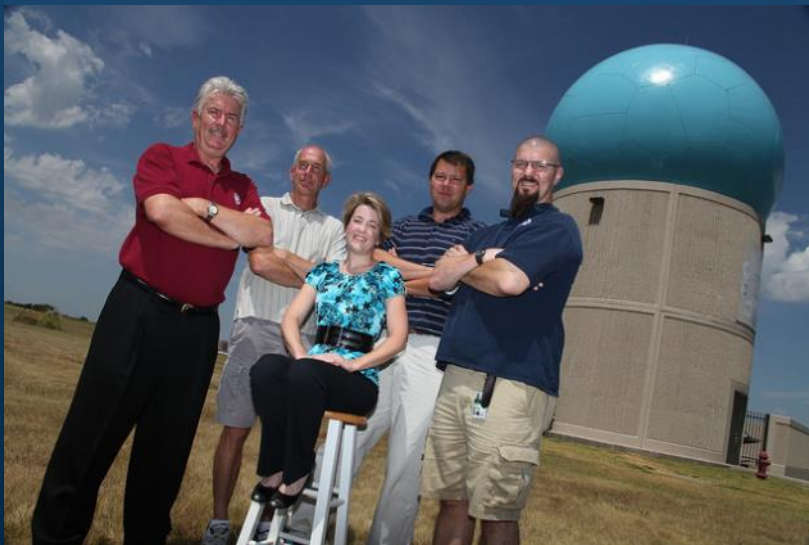
Invest in observational infrastructure



Achieve organizational excellence



NOAA Research's vision and mission advances the science needed for a Pacific Northwest Drought Early Warning System



To be a trusted world leader in observing, modeling, understanding and predicting the Earth system.

VISION



To conduct research to understand and predict the Earth system; develop technology to improve NOAA science, service and stewardship; and transition the results so they are useful to society.

MISSION

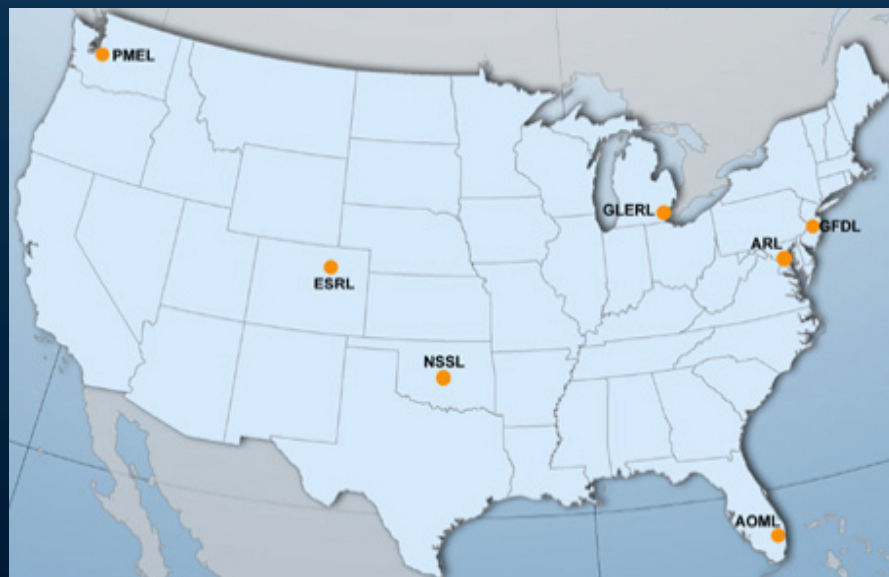


NOAA Research Laboratories provide a scientific understanding and knowledge foundation for a Pacific Northwest Drought Early Warning System

NOAA federal research laboratories conduct an integrated program of research, technology development, and services

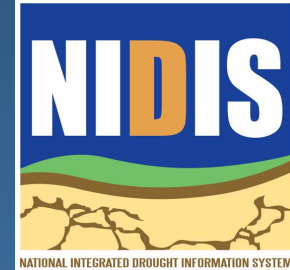
Science to improve the understanding of Earth's atmosphere, oceans, inland waters, as well as the interactions among them, and to describe, interpret and predict changes across weather and climate timescales.

The laboratories are located across the country with centers around the world



NOAA-hosted National Integrated Drought Information System

Drought spans weather to climate
Both a continuum and a cumulative deficit



Heat Waves
Storm Track Variations
Madden-Julian Oscillation

El Niño-Southern Oscillation + ?????

Decadal Variability
Solar Variability
Deep Ocean Circulation
Greenhouse Gases

30
DAYS

1
SEASON

3
YEARS

10
YEARS

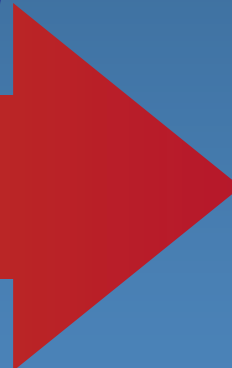
30
YEARS

100
YEARS

SHORT-TERM

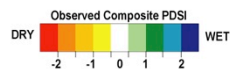
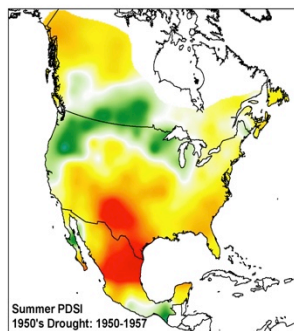
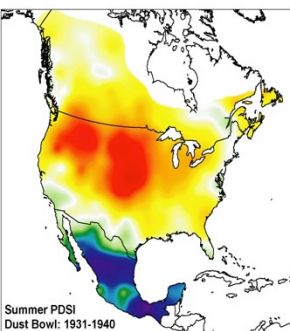
INTERANNUAL

DECADE-TO-CENTURY

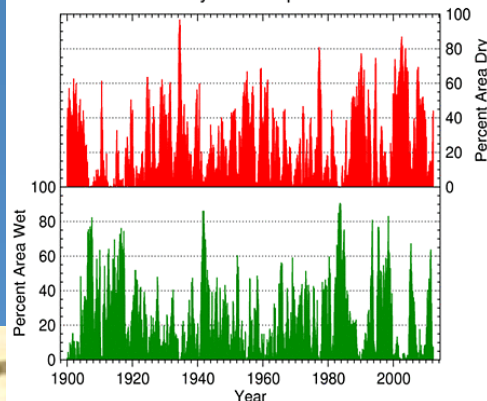


Dust Bowl Drought (1931-1940)

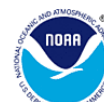
1950's Drought (1950-1957)



Western U.S. Percentage Area Wet or Dry
January 1900 - April 2012

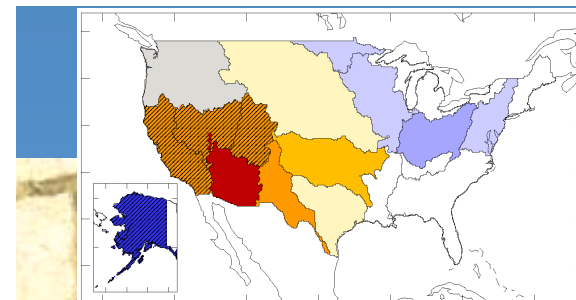
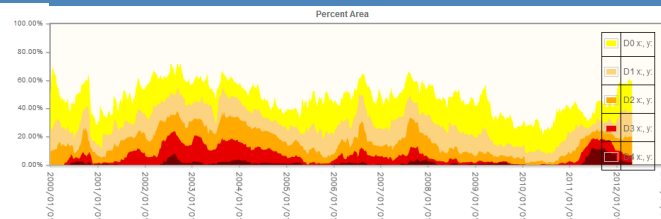


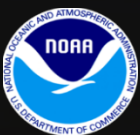
National Climatic Data Center / NESDIS / NOAA



*Based on the
Palmer Drought Index

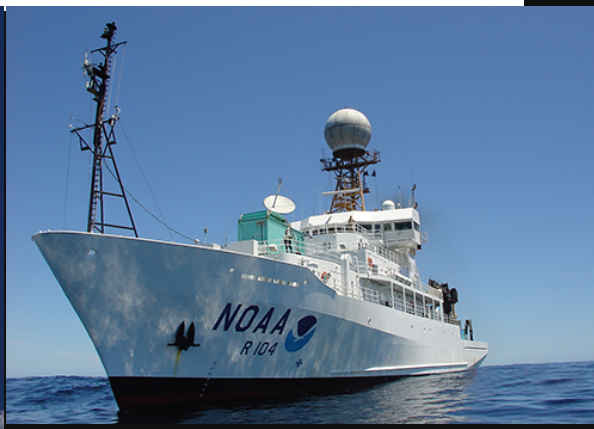
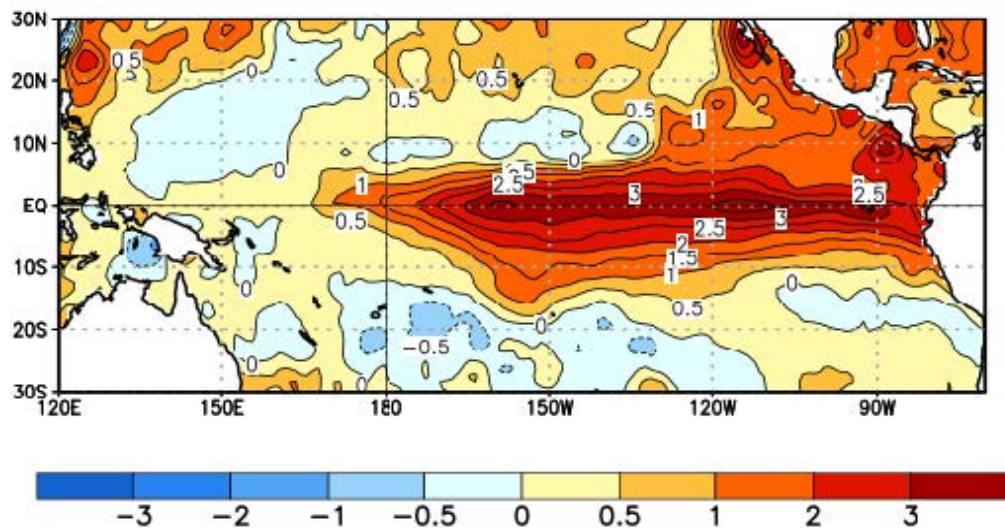
Red Moderate - Extreme Drought
Green Moderate - Extreme Wet





2016 NOAA El Niño Rapid Response Field Campaign

Average SST Anomalies
13 DEC 2015 – 9 JAN 2016



SST Daily Anomalies ($^{\circ}\text{C}$), 25 Oct 2015

Field Campaign Area and Coverage

